

A Process for Setting, Managing, and Monitoring Environmental Windows for Dredging Projects

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Thank you. First I have to make a few introductory comments. It is true that I've been involved in this business much longer than Doug. And so I think we have to forgive him for his youth and inexperience in some of the things that he said.

I think we have the answer, though, to Doug's problem. What's missing I think is the framework or a context within which to apply tools and knowledge, but it has to be in the context of 'you're going to make a decision.' We are going to make a decision.

I was sitting there thinking of -- there's a wonderful play called "The Virtuoso". Thomas Shadwell, a British playwright wrote it. Neville probably remembers. It was either the early 18th or the late 17th century.

And in this play "The Virtuoso", the main actor is Sir Nicholas Jimcrack. And when the curtain goes up, Sir Nicholas Jimcrack, a scientist, aquatic scientist, is lying on his laboratory table making frog-like swimming motions. And his assistant comes into the room and says, "sir, do you intend to try it in the water?" And his response is, "never. I content myself with the theoretical aspects of swimming and care not for the practical." And then he added, "I seldom bring anything to a useful conclusion."

Now, a lot of the research in dredging has not been brought to a useful conclusion, and we've got to have a process that somehow allows us to do that. And it's got to bring together not only scientists and engineers the way Doug said, it has to bring the other stakeholders to the same table because these are social processes and they're not scientific and technical processes. And so we've tried to develop that.

I think Doug has given us a good introduction, and so I'm going to get through this very quickly. I think it is important to underscore, though, that windows are only one management tool in a whole portfolio, and they should be used in that context with all the other tools that we have available to us to minimize impacts.

They are seductively simple because what they're saying is that there are times of the year when dredging and disposal operations will have a lesser impact on the environment or esthetics or biological resources than other times of the year. So, it's a seductively simple concept that's gotten out of hand. And 80 percent of all Federal projects now have windows of some kind associated with them.

The need for consistency, predictability, and reliability, was part of the charge that we had for the academy study. And the comment was made that windows need some CPR; consistency, predictability, and reliability. They are set at the district level, and

there are wide variations in the studying of processes. We looked at a number of districts in conducting this study.

There are variations in the number of projects for which there are windows. There are variations in the use of science in setting windows. In some cases science is not used at all. And in some cases there is a real attempt to take advantage of the science that we have.

And there's great inconsistency in the monitoring to determine whether the window made any sense at all. So the next time you have to dredge this project, you may want to use that window or a different window or no window at all.

Our process was designed for Federally mandated projects and that may be because we went from the Mac to the PC. So, the question is not -- whether or not to dredge. It's when to dredge.

The process that we put together exploits all of the data and information in a particular area, but it does that only if you can bring the right people to the table and keep them there. And it can be incorporated into existing stakeholder processes so that you shouldn't have to create something de novo.

The criteria for dredging processes. People get enamored with processes, and they talk about the beauty and elegance of processes. That's silly. Processes should be judged by the outcomes that they produce, whether those are decisions or products or services. Or in the case of the process we've designed, whether they produce decisions that can be carried out in a timely way. Those are the only ways to judge processes.

Deciding whether or not to dredge. Again, it is not a scientific question, although science can help us. And there are technical dimensions. Richard, the late Richard Feynman, the nobel laureate. And if you haven't read any of his popular books, you ought to. If you get the chance to see the play QED, which is about the last few years of his life, go see it.

He was a remarkable man. Not only a nobel laureate in physics, but one of the most distinguished teachers, professors that we've ever had. And on top of that, he operated at the interface between science and society. And he made the point that when you understand something, it gives you opportunity to do things, but it doesn't come with any set of instructions on what to do. And that is not a scientific process or how to apply that knowledge. And that's what we've got to do with these processes.

Stakeholders. In our process, first of all you bring all the stakeholders to the table. They decide, they frame the issues, they look at the region. They talk about all of the projects that need to be carried out within this particular region, and then they form a high level scientific advisory committee that is charged with telling us what's at risk, which of these are the least vulnerable, what are the thresholds.

They then hand that information to a group of engineers who recommend the best kinds of technology in project management. And then it comes back to the scientists who then are charged with saying all right, this is what the engineers tell us. We know these are the resources we want to protect.

What are the windows that we would recommend in order to both protect the resources, but make sure the project gets carried out? And then they hand that back to the stakeholder group, and they're charged with making a decision.

It's a simple process, but carrying it out is extraordinarily difficult because it involves people with different viewpoints, many of whom are posturing for the groups that they represent, and that's what we somehow have to overcome.

Primary stressors. Since Doug already did these, I'm just going to put them up, and you can take a look at them. I think they're the same list that Doug had.

All right. This is our process, and it's contained in a little book that came out from the academy some time last year. First step. You convene the stakeholders, and you make sure that you have all of the right stakeholders there so that all of the groups who have a stake in a particular port, a particular area are represented.

A friend of mine who's an African-American told me at a meeting, "if you're not at the table, you're on the menu." And he told me, "don't ever forget that, Schubel." And I think that's a good point.

We've got to make sure we have not just the scientists and the engineers and the port people at the table, but we have the group of environmentalists who really do care about the environment. They need to all be there at once, and they agree on the procedures and they agree we're going to stay at the table throughout this process, and we are going to make this work.

Now, that takes some time because you have to build some trust, and it's not something you schedule from 9:00 to 10:00. These processes take time. Most social processes suffer huge inefficiencies in order to be effective.

The frictional losses in social processes are absolutely huge. But if you're not prepared to tolerate inefficiency, you shouldn't be the person who's convening these sessions because you surely will not be effective downstream. So, this is agreed upon.

The next step, you look at all of the project details. Are windows in place? You identify the resources of concern, and you talk about not just a single project. You don't do this for one project. You look at a region, and you look at the whole portfolio of projects that are proposed, and you deal with all of them.

And as I mentioned, you then appoint science and engineering teams. And they've got to be the best scientists so that when people look at the names they say, you

know, yes, that guy really belongs there. They can say I wish they had put somebody on that also. But they should not be able to say scientist X. or engineer Y. have no business being on those teams.

All right. In step 3 this is now the scientific committee that's at work. They're compiling data on specific impacts and general life history literature. They really wrestle with all of the data and information, and they do it in the context of this particular region.

Again, I would underscore that efforts to synthesize and integrate information become valuable only if they are done in response to a particular set of questions or issues. Simply to integrate everything we know about turbidity, for example, would be useless. I think it's got to be done in a specific context. You have to be mining the data and the information to respond to a particular issue.

So, you get as much of this as you can, and this will be used year after year. And, yes, it should be updated as new knowledge becomes available. And you ask yourself are there sufficient data? Is there sufficient information in order for us to scientifically make a recommendation? And I would distinguish between data and information. They are not the same. Peter Drucker I thought had the best characterization. The management guru said, "information is data endowed with relevance and purpose." We have a lot of data. We don't necessarily have the right kind of information or Mediwire said, "it's information that has been architected in such a way that it delivers a message."

So you ask yourself, are there sufficient data? If the answer is yes, then you identify the stressors and the threshold levels for the particular organisms of concern. If the answer is no, you look at other species or other projects in other areas and see whether you can learn something from another region that may be the same species or closely related species.

And you may end up being able to say yes, there's enough data from Delaware Bay so that we can resolve this question on Chesapeake Bay for these same species for what we're doing. If the answer is no, then I think you use your best judgment and the available data. And if you want to say these are the questions that we need specific research on, fine, but you use the existing data and information that you have. And you then do the same thing. You come back, and you identify the stressors and the threshold levels, and you reckon this now in the light blue. These are the engineers. They come back and they say, all right, these are the stressors and the threshold levels. This is the kind of engineering we think you should use. This is the kind of dredge and disposal operation, et cetera, that we recommend to you.

This comes back to the scientists. They look at it. They review the impacts of what the engineers have said, and they then consider window applications and modifications. They've got the best scientific, the best engineering input, and it is not to say whether or not you're going to dredge it. It's to say when do you dredge then you have the least adverse impact on the resources of greatest concern whether those are esthetics or striped bass.

You could recommend the window always be open; that there are no reasons at all to have any kind of temporal restrictions. Or you recommend windows for species by spatially explicit regions and areas. So, you don't have to have a window for the entire New York Harbor. You might have a window for a small tributary where there's a project.

And you prioritize these windows because you saw in Doug's presentation that if you put a window up there for every species, there's not much time left, because they occur at different times of the year. And our mothers used to tell us, "don't worry when one door closes, another one will open." That doesn't seem to be the case with windows.

All right. The scientists then make their recommendations to the stakeholder group. And they're saying there's a community of scientists. This is the best judgment based upon the information from this area, other areas. These species are concerned, et cetera. And not all scientists like to do this.

And so again, you not only have to have the best scientists, but I think you have to have people who are willing to push the data and the information. Don Pritchard is my old mentor. He's dead now, but he was a master at that because on the Chesapeake Bay whether it was the Port Authority of Baltimore or the Secretary of National Resources, he said we've got to make the best decision. And he would work hard with a group to try to do that.

Another colleague I won't mention by name since he's already dead and that wouldn't be nice. I can say bad things about Doug Clarke, he's still alive. But this other guy's answer always was we need more money for more research, and he always got it. But Don used to force him a lot on these. Gene, we're going to make the best decision we can. And, yes, we'll get some more research.

That's what has to happen there. The stakeholders, they review the team recommendations, they consider the socioeconomic implications. And those are an important input in this group of stakeholders.

The same ones who started this process months ago, have been meeting so that even though they may disagree in their viewpoints, they begin to trust each other and like each other and respect each other, and they can disagree without being disagreeable. They then make windows recommendations.

And the dredging is conducted. An appropriate monitoring program is carried out. And at the end of it all, there is a census that determines what did we learn from this season's dredging in this particular region because this is a process that keeps going.

And we want to try to keep that core of stakeholder group intact. And it requires someone to facilitate it who does know how to move meetings along and let different people speak.

The stakeholder group reconvenes. They consider steps 1 to 5. They review the findings, and they recommend improvements for the next cycle. And then you start it all over again.

And these processes have to keep going and going and going. But as they do, they ought to be able to help us make better decisions. I really do believe that if you can get the right people at the table and create the right framework, that you can make rational decisions.

And in part you're diluting your rationality. And in part, you're making people be accountable in front of their peers. And they have to take more rational positions. You're going to talk all about this I hope.

Just briefly I've got some time left here, even though Doug took part of my time. We had two national meetings. One was a sea grant conference and dredged material management that was at MIT in December of 2000. And then we went to the National Dredging Team Conference in Jacksonville in January of 2000. We conducted case studies in ten Corps districts. And it was interesting because the case studies were conducted in parallel. We went to the Corps of Engineers and said, give us your view of how windows worked in this particular district. And then we went to NOAA independently and said, give us your view of how they work. And then we tried to see how these two viewpoints converged. And we had then a conference that was designed and conducted by the committee using input from the surveys of case studies, the two conferences.

And there's a case where when originally the academy was asked will you convene a conference that would discuss all of the things which we know about the impacts of dredging on the environment and discuss windows. And we said no because we did not think that was going to be very useful. You get a hundred people together and you discuss turbidity and entrainment. It doesn't help you very much.

So what we said we would do is we would try to design a process, and we would then present that process going into this conference, and there would be times throughout the conference at which participants could modify it, enhance it, enrich it, change it.

And throughout the conference we would present this to a panel that would include someone from the Corps, someone from NOAA, someone from EPA, and then we had one person representing a port.

So the idea was this is what we're proposing, is it going to work? Will you NOAA participate? Now, we didn't have Fish and Wildlife at the table, and we should have. I think it was a good conference.

I've already told you that. And now before I go to some selected recommendations -- well, let's just do this. Let me put them up. Dredging and disposal

activities are only one of a number of human activities that affect the nations' waterways, and they need to be evaluated in that context.

The stakeholder group needs to be reminded that dredging in the PORT of Baltimore is only one of a series of impacts or influences on that Port, and you need to evaluate it in that context.

They are one of a number of tools, and I've already made that point that they should be applied in the context of all of the other tools that we have available. And in some cases windows probably aren't appropriate at all.

The existing processes vary widely, and there's virtually no consistency across districts. And we recommended that this proposed process be pilot tested in at least two or three districts. I still think that's an important thing to do because otherwise this thing will just be filed away. And then at a meeting 20 years from now, Doug Clarke is going to be standing up here saying Schubel and all and whatever recommended windows. Let's find out if it's any good. And if it's not, let's get rid of it. I think it's worth a try. It darn sure won't make things worse. That's probably the most important recommendation.

We know far more about dredging than we like to acknowledge. And partly having been a scientist for many years, you know, we used to look at these. These were welfare programs for science because you guys in the Corps, you were easy picking to get money out of. And if we didn't have a Tropical Storm Agnes come along that would fund our research, we always knew that the Corps was there. They were good for it. I'm being a little bit facetious.

The most difficult step in the process is step 4, recommending a plan because that's where you have to balance the scientific, the economic, and the societal considerations. And again this is not a scientific process. These are social processes, they're government processes, and we have to take that into account.

And structured decision making tools can be helpful in arriving at decisions, and there are a whole bunch of these. And I think the one you choose depends in part upon the personalities of the stakeholder group and how familiar your facilitator or the chair of the group is with one or more of these.

Windows. Now, that one comes almost just right out of that report that Doug read from what was that 1979? They should be evaluated based upon the scientific information that we have. This just tells you all of the committee members, and I'll leave that up for just a second. And you can see that Tom Wakeman was a member of that committee. And so if there are any deficiencies in the report, I attribute those to Tom.

Some resource agencies say we just don't have the money and the resources, the people to bring to the table. But those same agencies often are the ones that snooker you when you're just ready to get a project underway. They do have time then.

The recommendation which I was I think a minority view on, additional funding should be allocated to make sure they're at the table. If that happens, boy, you better make sure they're at the table. They've got to come to the table. They've got to be good citizens, and they've got to help in the search for these sustainable solutions. And I do think peer pressure is very important in this whole process.

And I think I will end there, and I thank you very much.

MR. WAKEMAN: Jerry has made a very good point. We spent a lot of time and energy trying to figure out where to go with the windows issue. In several different meetings, several different venues, and then followed it up at a national conference.

What came out of that was a discussion and ultimately an acceptance of a structured decision making process. And that still is I think our best hope of optimizing our decision making around these issues.

He also emphasized the fact that it's a societal decision because many of these things are a value issue. I value dredging, and I value ships where someone else maybe values winter flounder as much as I value the ships. And that's where we have our public input.

And as you know over the last 30 years public input has changed. It used to be that the public just wanted information. And then in the latter part of the '80s and '90s, the public wanted to be involved. And now in the 21st century, the public wants to be engaged. They want to be at the table. They want to be part of the decision making process. And if you leave them out, they exercise their political will, and that will stop the process just as quickly as any fish window.

The process Jerry outlined is dependent on two factors; having a body of scientists and having a body of engineers who will tackle the issues and bring a rational recommendation back to that stakeholder group.

